user manual

PS2A200

Power Supply



um PS2A200-IM/Rev.B0/07-12

Hoefer®

Page finder

Power Supply Safety – English

- If this equipment is used in a manner not specified by Hoefer, Inc. the protection provided by the equipment may be impaired.
- This instrument is designed for indoor laboratory use only.
- Only accessories and parts approved or supplied by Hoefer, Inc. may be used for operating, maintaining, and servicing this product.
- Warning! Because this instrument can develop sufficient voltage and current to produce a lethal shock, care must be exercised in its operation.
- This instrument is designed in accordance with the EN61010-1:2001 electrical safety standard. Nevertheless, it should be used only by properly trained operators. Read this entire manual before using the instrument and use only according to the instructions.
- The instrument must always be used with the earth lead of the power cord correctly grounded to earth at the mains outlet.
- Use only undamaged electrical wire and equipment specific for the voltages you will use. All equipment connected to high voltage should be in accordance with EN61010-1:2001.
- Keep the instrument as dry and clean as possible. Wipe regularly with a soft, damp cloth. Let the instrument dry completely before use.
- Do not operate the instrument in extreme humidity (above 80%). Avoid condensation by letting the unit equilibrate to ambient temperature when taking the instrument from a colder to a warmer environment.
- To permit sufficient cooling, ensure that the vents of the instrument are not covered.
- Because this instrument has high-current capability, check the rating of any equipment attached. Do not exceed its rating when setting the power supply limits.

Napájení Bezpecnostní – Czech

- Pokud by toto zařízení je použito způsobem, který není podle Hoefer, ochrana poskytovaná na základě Inc. zařízení může být narušena.
- Tento nástroj je určen pro vnitřní použití v laboratoři pouze.
- Pouze příslušenství a části schválen, nebo poskytnutých Hoefer, Inc. mohou být použity pro provoz, údržbu, a údržbě tohoto výrobku.
- Pozor! Protože tento nástroj může vyvinout dostatečný napětí a proud, který má vyrábět a smrtiacej šok, péče musí být vykonávána v jeho provoz.
- Tento nástroj je určen v souladu s EN61010-1:2001 elektrické bezpečnostní normy. Přesto, že by měly být použity pouze řádně vyškolený operátorů. Číst celé toto ruční před použitím nástroje a použití pouze v souladu s pokyny.
- Přístroj musí být vždy používají se na výkonu zemi vést šňůra správně zemněny k zemi na síti výústce.
- Využití pouze nepoškozené elektrické dráty a vybavení pro napětí budete používat. Všechna zařízení spojené s vysokým napětím by měla být v souladu s EN61010-1:2001.
- Si ponechá nástroje jako suchý a čistý jako možné. Otřete pravidelně s a měkké, vlhkým hadříkem. Nechť je nástroj nenastavený úplně před použitím.
- Nejsou provozována na nástroj v extrémní vlhkost (nad 80%). Předešlo kondenzaci o pronájmu jednotky na okolní teplotu nechá při přijímání nástroj z chladnější do teplého prostředí.
- Pro umožnění dostatečné chlazení, zajistit, aby otvory nástroje jsou nevztahuje.
- Protože tento nástroj má vysoce aktuální schopnosti, zkontrolovat rating veškeré zařízení připojených. NEPŘEKRAČUJÍ jeho hodnocení na napájení při stanovení limitů.

Strømforsyning Sikkerhed – Danish

- Hvis dette udstyr bruges i en måde ikke specificeret ved Hoefer, Inc. den beskyttelse, som er blevet forsynet af udstyret kan måske svækkes.
- Dette instrument er designet for indendørs laboratoriumbrug bare.
- Bare tilbehør og del godkendede eller forsynede ved Hoefer, Inc. kan måske bruges for drive, funktionsfejl, og betjening dette produkt.
- Advare! Fordi dette instrument kan udvikle tilstrækkelig spænding og strøm at fremstille et dødbringende chok, skal pleje bruges i dets drift.
- Dette instrument er designet i overensstemmelse med EN61010-1:2001 elektrisk sikkerhedstandard. Alligevel, skulle det bruges bare af passende trænede operatører. Læs denne hel håndbog før bruging instrumentet og

brug bare i henhold til instruktionerne.

- Instrumentet skal altid bruges med jordblyet af netledningen rigtigt jordede til jord på hovedledningsudløbet.
- Bruger bare uskadt elektrisk tråd og udstyr, som være specifik for spændingerne du vil bruge. Alt udstyr forbundet til høj spænding skulle være i overensstemmelse med EN61010-1:2001.
- Beholder instrumentet så tør og ren som mulig. Tør regulært med et blødt, fugtigt stof. Lad instrumenttørken komplet før brug.
- Driver ikke instrumentet i yderst fugtighed (ovenfor 80%). Undgå kondensation ved lade enheden equilibrate til omgivende temperatur ved tageen instrumentets fra et koldere til et varmere miljø.
- At tillade tilstrækkelig afkøling, forsikrer, at lufthullerne af instrumentet er ikke dækket.
- Fordi dette instrument har høj-strømdygtighed, tjekker vurderingen af noget vedhæftet udstyr. Overskrid ikke dets vurdering ved sætteen strømforsyningernes grænserne.

Voeding Veiligheid – Dutch

- Indien deze uitrusting in een manier wordt gebruikt die niet door Hoefer is gespecificeerd, Nv. de bescherming die door de uitrusting is verzorgd kan worden geschaad.
- Dit instrument is voor binnenlaboratoriumgebruik enkel ontworpen.
- Enkel onderdelen en delen keurden goed of leverden door Hoefer, Nv. kan voor het bedienen worden gebruikt, handhavend en onderhouden van dit product.
- Waarschuwend! Omdat dit instrument voldoende spanning en stroom kan ontwikkelen om een dodelijke schok te produceren, moet zorg in zijn operatie worden geoefend.
- Dit instrument is in overeenstemming met de EN61010-1:2001 elektrische veiligheidsstandaard ontworpen. Niettemin zou het enkel door goed getrainde bedieningslieden moeten worden gebruikt. Lees dit volledige handboek voor het gebruik het instrument en gebruik enkel volgens de instructies.
- Het instrument moet altijd met de aardeleiding van het stroomsnoer correct grondde naar aarde aan het hoofdafzetgebied worden gebruikt.
- Gebruik enkel onbeschadigde elektrische draad en uitrustings specifiek voor de spanningen u zult gebruiken. Alle uitrustingen sloten aan aan hoogspanning zou in overeenstemming met EN61010-1:2001 moeten zijn.
- Houd het instrument zo droge en schone zoals mogelijk Bij. Wis regelmatig met een zacht, temper doek. Verhuur het instrument droogt volledig voor het gebruik.
- Bedien niet het instrument in extreme vochtigheid (bovenstaande 80%). Vermijd condensatie door het verhuren van de eenheid in evenwicht brengt naar omgevingstemperatuur wanneer nemen het instrument van een kouder naar een lievere omgeving.
- Om toe te staan voldoende afkoelen, verzeker dat de luchtopeningen van het instrument niet bedekt zijn.
- Omdat dit instrument hoogtepunt-stroomcapaciteit heeft, controleer de notering van gehechte uitrustingen. Overschrijd zijn notering niet wanneer zetten de netvoedingslimieten.

Virtalähde Turvallisuus – Finnish

- Jos tätä varusteita käytetään tavassa ei määritetty Hoeferille, Inc. suojelu ehkäisty varusteille saattaa olla avuton.
- Tämä väline suunnitellaan sisälaboratoriokäytölle vain.
- Vain lisävarusteet ja osat hyväksyivät tai toimitti Hoeferin oheen, Inc.:ää voi käyttää käyttämiselle, valvoalle, ja servicing tämä tuote.
- Varoittaminen! Koska tämä väline voi kehittää riittävä jännitteen ja virran tuottaa kuolettavan järkytyksen, huolta täytyy harjoittaa toiminnossaan.
- Tämä väline suunnitellaan EN61010-1:2001 sähköturvallisuusstandardin mukaisesti. Silti pitäisi käyttää vain ohi oikeasti koulutetut käyttäjät. Lue tämä kokonainen manuaalinen ennen välinettä ja käyttö vain ohjeiden mukaan.
- Välinettä täytyy käyttää aina valtanuoran maalyijystä perusti oikein maadoittaa sähköverkkoaukossa.
- Käyttää vain undamaged sähkömetallilankaa ja varusteita, täsmällinen jännitteille käyttää. Kaikki varusteet yhdistetty korkeaan jännitteeseen pitäisi olla EN61010-1:2001IN mukaisesti.
- Pitää välineen yhtä kuiva ja puhdas kuin mahdollinen. Pyyhi säännöllisesti pehmeällä, kostealla kankaalla. Anna väline kuivua täysin ennen käyttöä.
- Ei käytä välinettä extreme-ilmankosteudessa (80%)n yläpuolella. Vältä tiivistymistä antamalla yksikön equilibrate ympäröivään lämpötilaan kun ottaminen väline kylmempi lämpimämpään ympäristöön.
- Sallia riittävän jäähdyttäminen, varmistaa että välineen ilmareiät peitetään.
- Koska tässä välineessä on korkea-virtalahjakkuus, tarkistaa kiinnityttyjen varusteiden luokituksen. Älä ylitä luokitus kun asettaminen käyttöjänniterajojensa.

Sécurité d'alimentation – French

- Si cet équipement est utilisé dans une manière pas spécifié par Hoefer, Inc. la protection fourni par l'équipement pourrait être diminuée.
- Cet instrument est conçu pour l'usage de laboratoire intérieur seulement.
- Seulement les accessoires et les parties ont approuvé ou ont fourni par Hoefer, Inc. pourrait être utilisé pour fonctionner, maintenir, et entretenir ce produit.
- Avertissant! Parce que cet instrument peut développer la tension et le courant suffisants pour produire un choc mortel, le soin doit être exercé dans son opération.
- Cet instrument est conformément conçu à l'EN61010-1:2001 norme de sécurité électrique. Néanmoins, il devrait être seulement utilisé par les opérateurs convenablement entraînés. Lire ce manuel entier avant utiliser l'instrument et l'usage seulement selon les instructions.
- L'instrument toujours doit être utilisé avec l'avance de terre du cordon d'alimentation correctement a fondé à la terre à la sortie principale.
- Utiliser le fil et l'équipement électriques seulement intacts spécifiques pour les tensions que vous utiliserez. Tout équipement connecté à haute tension devrait être conformément à EN61010-1:2001.
- Garder l'instrument aussi sec et propre comme possible. Essuyer régulièrement avec un doux, étouffer du tissu. Laisser l'instrument sèche complètement avant l'usage.
- Ne pas fonctionner l'instrument dans l'extrême humidité (au-dessus de 80%). Eviter la condensation en laissant l'equilibrate d'unité à la température ambiante en prenant l'instrument d'un plus froid à un environnement plus chaud.
- Permettre le refroidissement suffisant, garantir que les conduits de l'instrument ne sont pas couverts.
- parce que cet instrument a la capacité d'haut-courant, vérifier le classement de n'importe quel équipement attaché. Ne pas dépasser son classement en réglant les limites d'alimentation.

Netzteilsicherheit – German

- Wenn diese Ausrüstung gewissermaßen nicht angegeben durch Hoefer, Inc verwendet wird, kann der durch die Ausrüstung zur Verfügung gestellte Schutz verschlechtert werden.
- Dieses Instrument wird für den Innenlaborgebrauch nur dafür entworfen.
- Nur Zusätze und Teile genehmigten oder lieferten durch Hoefer, Inc kann für das Funktionieren, das Aufrechterhalten, und die Wartung dieses Produktes verwendet werden.
- Die Warnung! Weil dieses Instrument genügend Stromspannung und Strom entwickeln kann, um einen tödlichen Stoß zu erzeugen, muss Sorge in seiner Operation ausgeübt werden.
- Dieses Instrument wird in Übereinstimmung mit dem EN61010-1:2001 elektrischen Sicherheitsstandard dafür entworfen. Dennoch sollte es nur von richtig erzogenen Maschinenbedienern verwendet werden. Lesen Sie dieses komplette Handbuch vor dem Verwenden des Instrumentes und verwenden Sie nur gemäß den Instruktionen.
- Das Instrument muss immer mit der Erdleitung der Macht-Schnur richtig niedergelegt zur Erde am Hauptausgang verwendet werden.
- Nur unbeschädigte elektrische Leitung und Ausrüstung spezifisch für die Stromspannungen verwenden, die Sie verwenden werden. Die ganze mit der Hochspannung verbundene Ausrüstung sollte in Übereinstimmung mit EN61010-1:2001 sein.
- Das Instrument ebenso trocken halten und reinigen wie möglich. Wischen Sie regelmäßig mit einem weichen, befeuchten Sie Stoff. Lassen Sie das Instrument trocken völlig vor dem Gebrauch.
- Das Instrument in der äußersten Feuchtigkeit (über 80 %) nicht bedienen. Vermeiden Sie Kondensation, die Einheit equilibrate zur Umgebungstemperatur laßend, wenn Sie das Instrument von einem kälteren bis eine wärmere Umgebung nehmen.
- Um das genügend Abkühlen zu erlauben, stellen Sie sicher, dass die Öffnungen des Instrumentes nicht bedeckt werden.
- Weil dieses Instrument Hochstromfähigkeit hat, überprüfen Sie die Einschaltquote jeder beigefügten Ausrüstung. Überschreiten Sie seine Einschaltquote nicht, wenn Sie die Energieversorgungsgrenzen setzen.

Alimentazione di Sicurezza – Italian

- Se quest'apparecchiatura è usata in un modo specificato da Hoefer, Inc. la protezione fornito dall'apparecchiatura potrebbe essere indebolita.
- Questo strumento è disegnato per l'uso di laboratorio interno solo.
- Solo gli accessori e le parti hanno approvato o hanno

fornito da Hoefer, Inc. potrebbe essere usato per operare, per mantenere, e per revisionare questo prodotto.

- Avvertendo! Perché questo strumento può sviluppare il voltaggio sufficiente e la corrente di produrre una scossa letale, la cura deve essere esercitata nella sua operazione. Questo strumento è disegnato conformemente all'EN61010-1:2001 la norma di sicurezza elettrica. Tuttavia, dovrebbe essere usato degli operatori solo correttamente addestrati. Leggere questo manuale intero prima di usare lo strumento e l'uso solo secondo le istruzioni.
- Lo strumento deve essere sempre usato col piombo di terra della spina di alimentazione correttamente hanno messo a terra alla terra alla presa di corrente principale.
- Usa il filo metallico e l'apparecchiatura solo intatti elettrici specifici per i voltaggi che lei userà. Tutta l'apparecchiatura collegata all'alto voltaggio dovrebbe essere conformemente a EN61010-1:2001.
- Tiene lo strumento come secco e pulito come possibile. Pulire regolarmente con un morbido, per spegnere il panno. Lasciare lo strumento asciuga completamente prima dell'uso.
- Non opera lo strumento nell'umidità estrema (al di sopra di 80%). Evitare la condensazione lasciando l'unità equilibra alla temperatura ambiente quando portare lo strumento da un più freddo a un ambiente più caldo.
- Di permettere raffreddare sufficiente, assicura che gli sbocchi dello strumento non sono coperti.
- Perché questo strumento ha la capacità di altocorrente, controlla la classificazione di qualunque apparecchiatura attaccata. Non eccedere la sua classificazione quando regolare i limiti di alimentatore.

Strømforsyning Sikkerhet – Norwegian

- Hvis dette utstyret blir brukt i en måte ikke spesifisert ved Hoefer, Inc. beskyttelsen som ha blitt git av utstyret kan bli svekket.
- Dette instrumentet er utformet for innendørs laboratoriumbruk bare.
- Bare tilbehør og deler godkjente eller forsynte ved Hoefer, Inc. kan bli brukt for drive, vedlikeholde, og betjene dette produktet.
- Varsler ! Fordi dette instrumentet kan utvikle tilstrekkelig spenning og strøm til å produsere et dødelig sjokk, må bli øvd bekymring i dets drift.
- Dette instrumentet er utformet i samsvar med EN61010-1:2001 elektrisk sikkerhetsstandard. Likevel burde bli brukt det bare av skikkelig utdannede operatører. Les denne hele håndboken før bruking instrumentet og bruken bare gi til instruksjonene.
- Instrumentet må alltid bli brukt med jorden blyet av kraftkabelen som riktig ha blitt jordet til jord på hovedledningen utløp.
- Bruker bare uskadd elektrisk ledningsfremføring og utstyr som er spesifikk for spenningene du vil bruke. All utstyr koplet til høyspenning burde være i samsvar med EN61010-1:2001.
- Beholder instrumentet som tørker og rengjør som mulig. Visk regulært med et mykt, fuktig stoff. La instrumentet tørker komplett før bruk.
- Driver instrumentet i ekstrem fuktighet ikke (ovenfor 80%). Unngå kondensasjon ved å la enheten equilibrate til omgivelsestemperatur ved taen instrumentets fra et kaldere til et varmere miljø.
- Til å tillate tilstrekkelig kjølig, sikrer at ventilasjonsåpningene av instrumentet er ikke dekket.
- Fordi dette instrumentet har høy-strømdyktighet, sjekker vurderingen av noe utstyr festet. Ikke overskrid dets å verdsette ved innstillingen kraftforsyningenes grensene.

Bezpieczeństwo Zasilanie – Polish

- Jeżeli ten sprzęt jest wykorzystywany w sposób nie określone przez Hoefer, Inc. do ochrony przewidzianej przez urządzenie może zostać obniżony.
- Instrument ten jest przeznaczony do użytku w laboratoriach kryty tylko.
- Tylko akcesoriów i części zatwierdzone lub dostarczone przez Hoefer, Inc. mogą być wykorzystane do eksploatacji, utrzymania i obsługi tego produktu.
- Uwaga! Ponieważ ten akt prawny może być rozwinięcie odpowiednich napięcie i bieżących do wyprodukowania śmiertelnego szoku, opiekę musi być wykonywane w działaniu.
- Ten instrument został zaprojektowany zgodnie z tym EN61010-1: 2001 Bezpieczeństwo elektryczne standard. Niemniej jednak, należy stosować jedynie przez odpowiednio przeszkoleni operatorów. Znajdą państwo to cały podręcznika przed zastosowaniem instrumentu i stosować jedynie zgodnie z instrukcjami.
- Instrument musi zawsze być wykorzystane z ziemi doprowadzić do zasilania detonującego właściwie uzasadnione na ziemię w sieci wodociągowej rynku zbytu.
- Wykorzystanie tylko nieuszkodzona elektrycznych drutów i urządzenia specjalne do napięć zapłacą

wykorzystania. Wszystkie urządzenia podłączone do wysokiego napięcia powinny być zgodne z EN61010-1: 2001.

- Kontrolować instrumentu jako suche i czyste jak to możliwe. Wytrzeć regularnie przy pomocy miękkiego wilgotnej szmatki. Niech się instrumentem całkowicie wysuszyć przed użyciem.
- Nie prowadzą do instrumentu w skrajnych wilgotności (powyżej 80%). Zapobiec kondensacji najmu przez jednostkę równoważyć do temperatury pokojowej przy podejmowaniu instrumentu z chłodniejsze w cieplejszych środowiska.
- Aby umożliwić wystarczające chłodzenia, zapewniają, że rozcięcia of the instrument nie objęte ubezpieczeniem.
- Bo ten instrument ma wysoki-obecne zdolności, sprawdzić jego ocena wiarygodności wszelkich urządzeń w załączeniu. Nie przekraczają przy ustalaniu jego ocena zasilania limitów.

Segurança de Alimentação – Portuguese

- Se este equipamento é usado numa maneira não especificada por Hoefer, Inc. que a protecção fornecida pelo equipamento pode ser comprometida.
- Este instrumento é projectado para uso de interior de laboratório só. Só acessórios e partes aprovaram ou forneceu por Hoefer, Inc. pode ser usada para operar, manter, e servicing este produto.
- Advertindo! Porque este instrumento pode desenvolver voltagem suficiente e corrente produzir um choque letal, cuidado deve ser exercitado em sua operação.
- Este instrumento é projectado de acordo com o EN61010-1:2001 condição de segurança eléctrica. Não obstante, deve ser usado só por operadores adequadamente treinados. Leia este manual inteiro antes de usar o instrumento e use só de acordo com as instrucções.
- O instrumento sempre deve ser usado com o chumbo de terra do cordão de poder corretamente baseou a terra nos canos saída principais.
- Usa fio eléctrico só intacto e equipamento específico para as voltagens que você usará. Todo equipamento conectado a voltagem alta deve ser de acordo com EN61010-1:2001.
- Mantem o instrumento tão seco e limpo como possível. Limpe regularmente com um pano húmido macio. Deixe o instrumento secar completamente antes de uso.
- Não opera o instrumento em humidade extrema (acima de 80%). Evite condensação deixando o equilibrate de unidade a temperatura ambiental quando tomar o instrumento de um mais frio a um ambiente mais quente.
- Permitir esfriar suficiente, assegura que as aberturas do instrumento não são cobertas.
- Porque este instrumento tem capacidade de alto-corrente, verifica o avaliar de qualquer equipamento anexado. Não exceda seu avaliar quando pôr os limites de estoque de poder.

Seguridad del suministro de energía – Spanish

- Si este equipo es utilizado en una manera no especificado por Hoefer, S.a. la protección proporcionado por el equipo puede ser dañada.
- Este instrumento es diseñado para el uso interior del laboratorio sólo. Sólo accesorios y partes aprobaron o suministraron por Hoefer, S.a. puede ser utilizado para operar, para mantener, y para atender a este producto.
- Advirtiendo! Porque este instrumento puede desarrollar voltaje y corriente suficientes para producir un golpe mortal, el cuidado debe ser ejercitado en su operación.
- Este instrumento es diseñado de acuerdo con el EN61010-1:2001 estándar eléctrico de seguridad. No obstante, debe ser utilizado sólo por operarios adecuadamente capacitados. Lea este manual entero antes de utilizar el instrumento y el uso sólo según las instrucciones.
- El instrumento siempre debe ser utilizado con el plomo de la tierra del cable de alimentación molió correctamente a la tierra en la salida de red.
- Utiliza alambre y equipo eléctricos sólo ilesos específicos para los voltajes que usted utilizará. Todo equipo conectado al voltaje alto debe ser de acuerdo con EN61010-1:2001.
- Mantiene el instrumento tan seco y limpio como posible. Enjugue regularmente con un suave, el trapo húmedo. Permita que el instrumento seque completamente antes de uso.
- No opera el instrumento en la humedad extrema (encima de 80%). Evite condensación permitiendo la unidad equilibra a la temperatura ambiente al tomar el instrumento de un más frío a un ambiente más tibio.
- Permitir refrigeración suficiente, asegure que las aberturas del

- Porque este instrumento tiene la capacidad de alto-corriente, verifique la calificación de cualquier equipo conectado. No exceda su calificación al poner los límites de alimentación.

Strömförsörjning Säkerhet – Swedish

- om denna utrustning används i ett sätt som inte har specificeras av Hoefer, Inc. skyddet tillhandahöll vid utrustningen kan skadas.
- Detta instrument formges för inomhuslaboratorium användning bara.
- Bara medhjälpare och delar godkände eller levererade vid Hoefer, Inc. kan användas för fungera, underhålla, och servicing denna produkt.
- varna! Därför att detta instrument kan utveckla tillräcklig spänning och ström att producera en dödlig stöt, måste övas omsorg i dess funktion.
- Detta instrument formges i överensstämmelse med EN61010-1:2001 elektriska säkerheten standarden. Icke desto mindre, bör det användas bara av riktigt utbildade operatörer. Läs denna hela handbok före använda instrumentet och använd bara enligt undervisningarna.
- Instrumentet måste alltid användas med jorden blyet av kraften repet riktigt grounded till jorden på det huvudutloppet.
- Använder bara undamaged elektrisk tråd och utrustning specifik för spänningarna du ska använda. All utrustning kopplats som till hög spänning skulle vara i överensstämmelse med EN61010-1:2001.
- Håller instrumentet då torkar och rengör som möjlig. Torka regelbundet med en mjuk, fuktig trasa. Låt instrumentet torka fullständigt före användningen.
- Fungerar inte instrumentet i extrem fuktighet (över 80%). Undvik kondensering vid låta enheten equilibrate till omgivande temperatur när ta instrumentet från en kallare till en varmare miljö.
- Att tillåta tillräcklig kyla, ser till att hålen av instrumentet inte täcks.
- därför att detta instrument har hög-ström förmåga, kontrollerar rangen av någon utrustning fäste. Inte överstiger dess rang när inställning kraften tillgången gränserna.

Waste Electrical and Electronic Equipment (WEEE)

English

This symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. Please contact an authorized representative of the manufacturer for information concerning the decommissioning of your equipment.

French

Ce symbole indique que les déchets relatifs à l'équipement électrique et électronique ne doivent pas être jetés comme les ordures ménagères non-triées et doivent être collectés séparément. Contactez un représentant agréé du fabricant pour obtenir des informations sur la mise au rebut de votre équipement.

German

Dieses Symbol kennzeichnet elektrische und elektronische Geräte, die nicht mit dem gewöhnlichen, unsortierten Hausmüll entsorgt werden dürfen, sondern separat behandelt werden müssen. Bitte nehmen Sie Kontakt mit einem autorisierten Beauftragten des Herstellers auf, um Informationen hinsichtlich der Entsorgung Ihres Gerätes zu erhalten.

Italian

Questo simbolo indica che i rifiuti derivanti da apparecchiature elettriche ed elettroniche non devono essere smaltiti come rifiuti municipali indifferenziati e devono invece essere raccolti separatamente. Per informazioni relative alle modalità di smantellamento delle apparecchiature fuori uso, contattare un rappresentante autorizzato del fabbricante.

Spanish

Este símbolo indica que el equipo eléctrico y electrónico no debe tirarse con los desechos domésticos y debe tratarse por separado. Contacte con el representante local del fabricante para obtener más información sobre la forma de desechar el equipo.

Swedish

Denna symbol anger att elektriska och elektroniska utrustningar inte får avyttras som osorterat hushållsavfall och måste samlas in separat. Var god kontakta en auktoriserad tillverkarrepresentant för information angående avyttring av utrustningen.

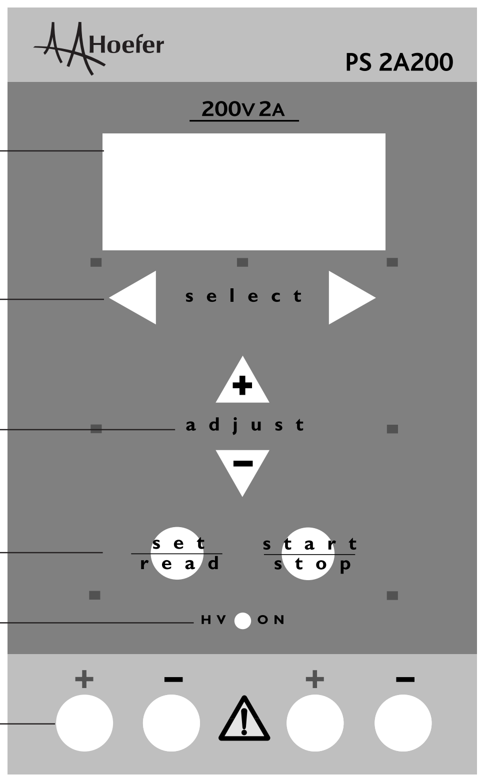
Power supply function and description

Please note the following power output limitations:

- The maximum power supply output is 200 W, so the maximum current of 2000 mA is available at ≤100 V.
- At the maximum voltage setting of 200 V, the current is limited to ≤1000 mA.

The PS2A200 power supply provides the high-current capability required for such electrophoresis applications as tank and semidry electrotransfers. The backlit liquid crystal display (LCD) reports power supply status, and displayed parameters are set by pressing the keys indicated by raised dots and arrows on the power supply face. Two pairs of recessed output jacks accept 4 mm plugs, which are connected in parallel.

Fig 1. PS2A200 front panel.



backlit LCD
(displays V, mA, W, as well as h and min elapsed and remaining)

cursor control
(moves the cursor to the value to be adjusted)

value control
(increases [+] or decreases [–] the value)

mode select: set/read
output power control: start/stop
(both keys toggle between the two options)

power output indicator
(red lamp lit indicates power is on)

power output jacks
(in parallel)

Power output is controlled by setting a maximum value for voltage (1 to 200 V), current (1 to 2000 mA), or watts (1 to 200 W). The PS2A200 automatically "crosses over," or switches the controlling parameter according to programmed limits as resistivity changes during a run. Run duration can be untimed or programmed to a maximum of 99 h and 59 min. A printed record of the power supplied during a run can be obtained by connecting the RS232 serial communications port to a printer.

Unpacking

Unwrap all packages carefully and compare contents with the packing list, making sure all items arrived. If any part is missing, contact your local Hoefer, Inc. sales office. Inspect all components for damage that may have occurred while the unit was in transit. If any part appears damaged, contact the carrier immediately. Be sure to keep all packing material for damage claims or to use should it become necessary to return the unit.

Rear panel

The main power switch and power cord receptacle are at the rear of the instrument. A communications port allows a printout of the power and time parameters of the most recent run (see page 16).

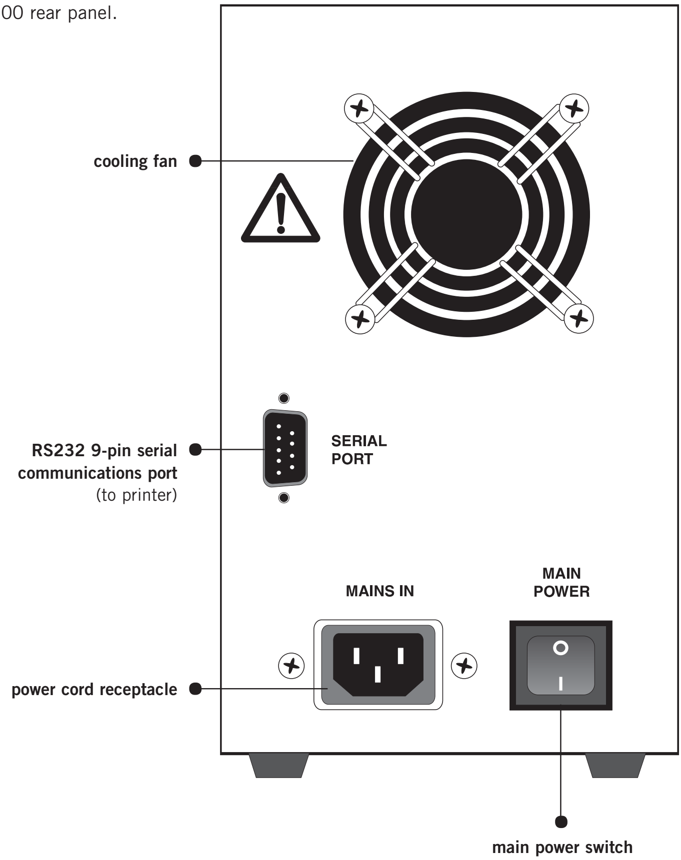


Fig 2. PS2A200 rear panel.

Specifications

This declaration of conformity is only valid for the instrument when it is:

- used in laboratory locations
- used as delivered from Hoefer, Inc. except for alterations described in the user manual
- connected to other CE-labeled instruments or products recommended or approved by Hoefer, Inc.

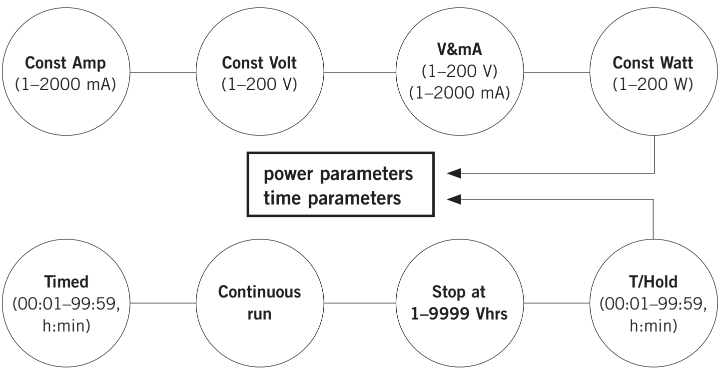
Power requirement	
Frequency	47–63 Hz
Line voltage	90–265 VAC
Power consumption	300 W maximum
Power output	200 W maximum
User interface	4 line × 16 character backlit LCD display, membrane keypad
Programmable parameters 3 named protocols 3 steps maximum for each protocol 0–200 V, 1 V step 0–2000 mA, 1 mA step 0–200 W, 1 W step 00:01–99:59 h:min, 1 min step 1–9 999 Vh, 1 Vh step	
Communications port RS232 9-pin male serial connector, 1200 or 9600 baud, no parity, 8 data bits, 1 stop bit, no flow control	
Operating environment Indoor use, 5–40 °C, relative humidity 0–90% noncondensing, pollution degree 2, overvoltage category II	
Dimensions (h × w × d)	22 × 12 × 28 cm (8.6 × 4.3 × 10.7 in)
Weight	2.6 kg (5.8 lb)
Safety	Open circuit message if resistance is ≥300 kΩ
Product certifications	
Safety	UL61010A-1: 10/93, EN61010-1: 1993 (IEC1010-1), CSA (22.1010.1-92)
Emissions	EN55011: 1991 Class B
Immunity	EN50 082-1:92 CE

Parameter and operation overview

Parameter options

The PS2A200 can be set within the parameter options mapped out below. Note that power parameters are displayed on the top line of the LCD, and time parameters are displayed on the bottom. Options are listed in the order they are encountered.

Fig 3. Parameter options.



Power parameters

Because the power limit is 200 W (W = V·A), the maximum current of 2000 mA can be delivered only if voltage is limited to ≤100 V. Conversely, the maximum voltage of 200 V can be delivered only if the current is limited to ≤1000 mA.

During a run the location of the cursor indicates which parameter is being held constant. If load requirements are such that an unprogrammed crossover occurs (for instance, instead of holding voltage constant, as programmed, current is held constant), the parameter unit (V, mA, or W) will flash, indicating that this value rather than the programmed value is being held constant.

Time parameters

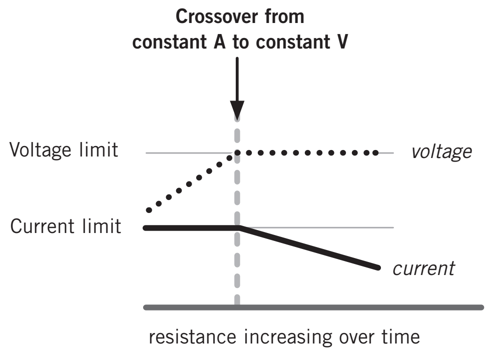
The run duration can be programmed (00:01–99:59 hrs), unlimited, or set for a specified number of volt-hours. The timed/hold option (T/Hold) delivers 5 V to the load at the end of the timed run to minimize band diffusion in gradient gels.

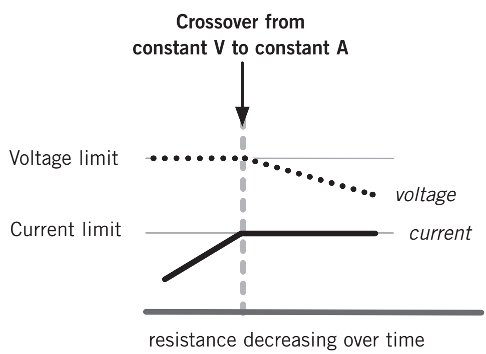
Power supply output limits

The PS2A200 can be programmed to limit only voltage (V), only current (mA), voltage and current together (V&mA), or only power (W). The power supply will operate at the set limits provided the "load," or power requirement, does not exceed the power supply rating. When *both* current and voltage limits are set, the load draws the required power within those limits.

"Crossover" occurs when the second parameter limit is reached as system resistance changes. At this point the second parameter is held constant and the previously unchanging parameter is allowed to adjust downward as system resistance changes. (System resistance is affected by discontinuous buffers and changes in temperature.) When the power supply is delivering power (the HV lamp is lit), the location of the cursor indicates which parameter is being held constant.

Fig 4. Power supply crossover.





Power supply operation

Connections

Important! Use only *one* hand when making or breaking a connection to avoid making a complete circuit across your body. Also, make sure your other hand is not touching anything that grounds you.

Important! If you are in the middle of a run and wish to connect or disconnect the leads, always turn power supply off (press *start/stop*) and wait for the HV lamp to turn off.

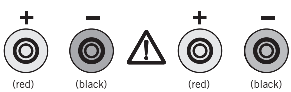


Fig 5. The output jacks are recessed and color coded.

Recommended leads:
- 4 mm (banana) plugs, fixed insulating sheaths

Will accept:
- 4 mm (banana) plugs, unsheathed or retractable sheaths

Not recommended:
- Stackable plugs

Note: If you wish to connect a printer or computer, install the RS 232 cable before turning on the power.

❶

Connect the mains power cord. Connect the mains power cord to the power cord receptacle on the rear panel and to a suitable grounded three-wire AC power outlet. Place the power supply so that the fan on the back panel and the vents on the bottom are not obstructed.

❷

Connect the HV power leads. Connect the apparatus to the power supply by plugging the lead connectors into the recessed output jacks (Fig 5).

❸

Turn on the main power switch on the rear panel. After the unit completes a 20 sec diagnostic cycle, the power supply will be in SET mode, in which the power and time parameters programmed for the previous run are displayed.

Optional: If you wish to record the parameters during a run, connnect the PS2A200 to a serial printer or PC using the RS232 port located on the rear panel.

In order for the PS2A200 to communicate with a printer or PC, the baud rate between the two instruments must be set to the same value.

To set the baud rate press the left and right arrows simultaneously to access the setup menu:

```
PS2A200 Setup
   procedure
up to adj V & A
down to set baud
```

Press the down arrow to access the baud rate screen.

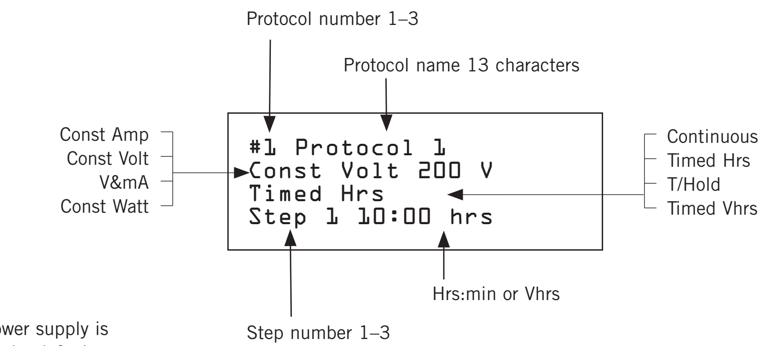
```
Serial Port
 baud rate: 1200
Up & down to set
Right to exit >
```

Use the up or down arrows to set the baud rate and the right arrow to exit to the main menu.

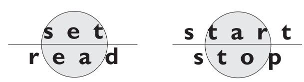
Power parameters

There are many possible displays in SET mode, but all use the format illustrated immediately below. (In contrast, READ mode, shown at bottom, is always characterized by a display of all three V, mA, and W values.)

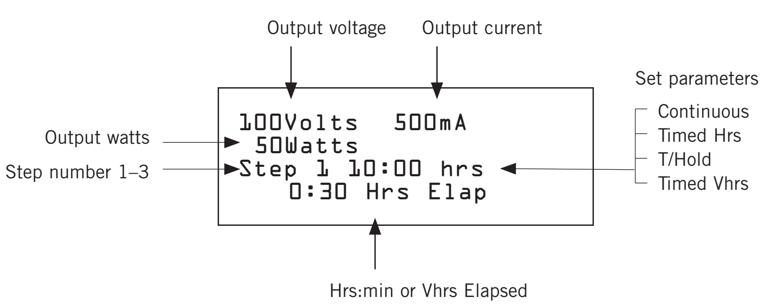
SET mode



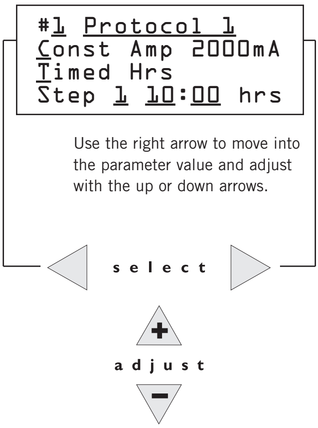
Note: The power supply is in SET mode by default except when power is being delivered to a load. Once the HV output is on (the *start/stop* key has been pressed) SET mode is selected by pressing the *set/read* key. After 5 s of inactivity, the power supply switches to the READ mode automatically.



READ mode



On the left side of the screen the left arrow selects which parameter to adjust.



Note: The output jacks are in parallel. If both pairs of jacks are used, the total mA value displayed will be divided between the loads in inverse proportion to the resistance of each load. For two identical loads to be run at constant mA, set twice the current desired for a single load. The set voltage is supplied to both pairs of output jacks.

Setting constant current output

❶

Select "Const Amp"

Place the cursor in the first field of the second line by pressing the *select* arrow keys (left and right arrows under the display). Then press the *adjust* arrow keys (pointing up and down) until "**Const Amp**" displays in the field.

As you scroll through the four options, a short beep indicates each change.

❷

Set the amp value

Place the cursor under the digit in the mA digit field that you wish to change by pressing the *select* arrow keys. Select the value of the digit by pressing the *adjust* arrow keys. The (+) arrow increases the value, and the (–) arrow decreases the value. A short beep indicates that the change was registered. Repeat for each of the four active digits in this field (1–2000 mA).

❸

When the *start/stop* key is pressed to start the run, the cursor will be in the mA field to indicate that this value is being held constant. So long as the cursor is in the mA field, this value can be edited without switching to SET mode. To edit other parameters during a run, press the *set/read* key.

Setting constant voltage output

```
#1 Protocol 1
Const Volt 200 V
Timed Hrs
Step 1 10:00 hrs
```

1

Select "Const Volt"

Place the cursor in the first field of the second line by pressing the *select* arrow keys (left and right arrows under the display). Then press the *adjust* arrow keys (pointing up and down) until "**Const Volt**" displays in the field.

As you scroll through the four options, a short beep indicates each change.

2

Note: The maximum current available at 200 V is 1000 mA due to the relationship W = V·A.

Set the voltage value

Place the cursor under the digit in the V digit field that you wish to change by pressing the *select* arrow keys. Select the value of the digit by pressing the *adjust* arrow keys. A short beep indicates that the change was registered. Repeat for each of the three active digits in this field (1–200 V).

3

When the *start/stop* key is pressed to start the run, the cursor will be in the V field to indicate that this value is being held constant. This value can be edited without switching to SET mode. To edit other parameters during a run, press the *set/read* key.

Setting constant wattage output

```
#1 Protocol 1
Const Watt 200 W
Continuous run
```

1

Select "Const Watt"

Place the cursor in the first field of the second line by pressing the *select* arrow keys (left and right arrows under the display). Then press the *adjust* arrow keys (pointing up and down) until "**Const Watt**" appears in the field.

As you scroll through the four options, a short beep indicates each change.

2

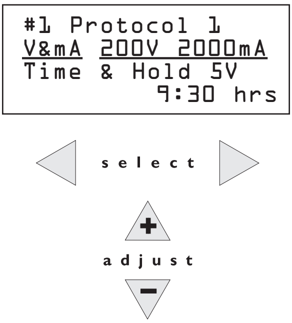
Set the wattage value

Place the cursor under the digit in the W digit field that you wish to change by pressing the *select* arrow keys. Select the value of the digit by pressing the *adjust* arrow keys. A short beep indicates that the change was registered. Repeat for each of the three active digits in this field (1–200 W).

3

When the *start/stop* key is pressed to start the run, the cursor will be in the W field to indicate that this value is being held constant. This value can be edited without switching to SET mode. To edit other parameters during a run, press the *set/read* key.

Limiting both voltage and current



1

Select “V & mA”

Place the cursor in the first field of the second line by pressing the *select* arrow keys (left and right arrows under the display). Then press the *adjust* arrow keys (pointing up and down) until “**V & mA**” appears in the field.

As you scroll through the four options, a short beep indicates each change.

2

Set the voltage and current values

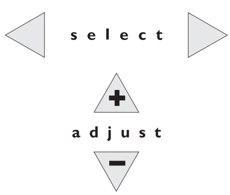
Place the cursor under the digit in the V digit field that you wish to change by pressing the *select* arrow keys. Select the value of the digit by pressing the *adjust* arrow keys. A short beep indicates that the change was registered. Repeat for each of the three active digits in this field (1–200 V). Repeat for the four active digits in the “mA” field (1–2000 mA).

3

When the *start/stop* key is pressed to start the run, the cursor will be in the field of the value presently held constant. Crossover will occur as required to keep output within the set limits.

Time parameters

```
#1 Protocol 1
Const Volt 200 V
Timed Hrs
Step 1:10:00 hrs
```




```
#1 Protocol 1
Const Volt 200 V
Time & Hold 5V
       10:00 hrs
```

```
#1 Protocol 1
Const Volt 200 V
Timed VHrs
Step1: 10000 Vhrs
```

There are four time options to choose from:

- The **Continuous run** option delivers power until the operator manually turns off the power supply.
- The **Timed Hrs** option delivers power for the set time.
- The **Time & Hold** (timed/hold) option delivers power for the set time and then holds the voltage at 5 V to minimize band diffusion in gradient gels until the operator manually turns off the power supply.
- The **Timed Vhrs** option delivers a preset amount of power measured in volt-hours (Vhrs) and then stops all power output.

1

Select the time option

Place the cursor in the first field of the third line by pressing the *select* arrow keys (left and right arrows under the display).

Then press the *adjust* arrow keys (pointing up and down) to select **Continuous run**, **Timed Hrs**, **Time & Hold 5V**, or **Timed Vhrs** displays in the field. In the **Timed Hrs** and **Timed Vhrs** modes place the cursor under the Step number field and select the step number (1–3) if you desired more than one step.

As you scroll through the four options, a short beep indicates each change.

2

Set the run duration

Timed Hrs and Time & Hold 5V — Place the cursor under the digit in the h:min (00:00) field that you wish to change by pressing the arrow keys. Select the value of the digit by pressing the arrow keys. The (+) arrow increases the value, and the (–) arrow decreases the value. A short beep indicates that the change was registered. Repeat for each of the four active digits in this field. The maximum value is 99 h and 59 min.

Timed Vhrs — Follow the same procedure as above, placing the cursor under the digit in the Vhrs field. The maximum value is 60000 volt-hours.

Starting the run

Press the *start/stop* key to activate the DC output. The red HV lamp lights and a beep indicates that power is supplied. A flashing colon in the time field indicates that the timer is running.

The LCD reports power output values and selected power and time options. The location of the cursor indicates the parameter held constant, and the time elapsed and time or volt-hours remaining are displayed on the second line.

Note 1: Displayed output values include the governing parameter that you set, indicated by the cursor position, and the other power variables, which are calculated according to the power relation W = V·A.

Note 2: If the V, mA, or W flashes, it is to alert the operator that this parameter is being held constant rather than the programmed parameter because of changes in the electrical load.

```
1:30 hrs remain
Up to continue
Down to abort
```

Important! If you are in the middle of a run and wish to connect or disconnect leads, always turn off the power supply (press *start/stop*) and wait for the HV indicator lamp to turn off.

Note: If the AC mains power is interrupted while the power supply is on, the power supply stores the actual values and resumes operation at those values when the mains power comes back on.

During the run

Press the *start/stop* key anytime to deactivate the DC output. The HV lamp will turn off.

For Continuous runs, the LCD will switch to SET mode.

For Timed and Time & Hold runs, the LCD will indicate the time remaining. Press the (+) *adjust* key to resume at the same point or the (–) *adjust* key to stop the run.

Adjusting parameters during a run

The location of the cursor indicates which parameter is being held constant, and this parameter can be adjusted directly by pressing the (+) and (–) *adjust* keys. Other parameters can be adjusted by pressing the *set/read* key to switch to SET mode. After 5 s of inactivity, the display automatically reverts to READ mode.

At the end of the run

```
Hoefer PS2A200 Power Supply
Serial No. test-EPS4
Software Ver. B0
Protocol # 1 Protocol 1
******* Run conditions *********
Timed Hrs
Const Volt
Step #1  0:05 Hrs
 50 Volts
Step #2  0:30 Hrs
150 Volts

********* Run started **********
At total run time  0:00 Hrs
 50Volts   246mA
 12Watts
Step:1  0:05 Hrs
   0:00 Hrs Elap

****** End Time Step *******
At total run time  0:05 Hrs
 50Volts   246mA
 12Watts
Step:1  0:05 Hrs
   0:05 Hrs Elap

At total run time  0:10 Hrs
150Volts   732mA
110Watts
Step:2  0:30 Hrs
   0:05 Hrs Elap

At total run time  0:30 Hrs
150Volts   727mA
109Watts
Step:2  0:30 Hrs
   0:25 Hrs Elap

****** End Time Step *******
At total run time  0:35 Hrs
150Volts   726mA
109Watts
Step:2  0:30 Hrs
   0:30 Hrs Elap

********* Run ended ************
At total run time  0:35 Hrs
```

Once a time or volt-hour limit is reached, a 30 second beep sounds. The LCD will report that the cycle is complete. At the end of a Time & Hold run, there will be an additional message indicating that the voltage output is being held at 5.0 V. Pressing any key will display the last parameters set.

```
Cycle Complete
Press any key
```

```
Cycle Complete
Holding at 5.0V
```

Reviewing run parameters

After the run, the LCD will display statistics for the completed run when both the HV power is off (the HV lamp is not lit) and the *set/read* key is pressed. The programmed settings and power conditions at the start, midpoint, and end of the run as well as the total volt-hours will be displayed.

Documentation

When using a serial printer to document run parameters the recorded information includes the instrument serial number and software version, the protocol name and running conditions, a report of the output every five minutes, indications of each step change and the end of the run.

Troubleshooting

Display shows "Open circuit"

- Check that both leads from each electrophoresis unit are plugged in completely.
- Check that both electrophoresis unit electrodes contact buffer and that buffer contacts both ends of the gel.
- Check electrode connections.
- Check for broken leads or electrodes.

No display

- Check that the power supply is plugged into a working receptacle.
- Check that the main power switch is on.

Unable to change parameter values

- Check that the instrument is in SET mode and that the cursor is located in the field in which you wish to adjust the value.

Care and maintenance

- If spilled liquid leaks onto the circuit boards, do not plug the power supply into a power outlet. Call Hoefer, Inc. for advice before using.
- Turn the mains power switch off and unplug the power cord before cleaning.
- Use a soft cloth dampened with water or a mild cleaning solution to clean the cabinet and display.

Customer service information

Technical service and repair

Hoefer, Inc. offers complete technical support for all of our products. If you have any questions about how to use this product, or would like to arrange to repair it, please call or fax your local Hoefer, Inc. representative.

Ordering information

	qty.	code no.
PS2A200 Power Supply, universal voltage 90-265 VAC, 47–63 Hz	1	PS2A200
Power cord, 115 V	1	PSCORD-115
Power cord, 230 V	1	PSCORD-230
User manual	1	PS2A200-IM

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